Claim Listing

1-31. Cancelled.

32-45. Cancelled.

46. (New) Detector for detecting movements, comprising:

a moveable exciter magnet (EM);

only one ferromagnetic element (FE) having Weiss regions and Bloch walls;

an induction element (SP1) surrounding said ferromagnetic element (FE);

a second induction element (SP2) surrounding said ferromagnetic element;

said induction element (SP1) provides a first output (22) at time Ts when said ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM);

said second induction element (SP2) provides a second output (23) substantially but not precisely simultaneously with said first output at time (Ts) when said ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM) without further movement of said exciter magnet (EM); and,

said first (22) and second (23) outputs are shifted in time with respect to each other, said time shift and sequence of occurrence of said first (22) and second (23) outputs determines the direction in which said remagnetization of said ferromagnetic element is triggered and the polarity and position of said exciter magnet (EM).

47. (New) Detector according to Claim 46, wherein said movable magnet is a rotatable exciter magnet (EM) and said detector is adapted for detecting rotational movements.

48. (New) Detector according to Claim 46, further comprising: an evaluation circuit (30), said evaluation circuit includes a counter (38), a capacitor, and a non volatile memory unit (36);

and, said exciter magnet (EM) is rotatable and the detector is adapted for detecting rotational movements.

49. (New) Detector according to Claim 48 wherein the polarity and direction of movement of said exciter magnet (EM) at time (Ts) is determined from data in said nonvolatile memory (36) and from said first and second outputs (22, 23).

50. (New) Detector according to Claim 46 wherein said ferromagnetic element (FE) is a pulse wire.

51. (New) Detector according to claim 46 wherein said induction element (SP1) is a coil used to measure said magnetization direction of said ferromagnetic element (FE) in conjunction with said second induction element (SP2).

52. (New) Detector according to Claim 46 wherein said second induction element (SP2) is a coil wound over said ferromagnetic element (FE) and is used to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered.

53. (New) Detector according to claim 46 wherein said induction element (SP1) is a coil and said second induction element (SP2) is a coil, and said induction element (SP1) and said second induction element (SP2) are used to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered.

54. (New) Detector according to C1aim 46 wherein at least one ferromagnetic flux conducting piece (FL1 and/or FL2) for guiding and/or bundling the flux resides proximate to said ferromagnetic element (FE).

55. (New) Detector according to Claim 48 wherein the energy supply for said evaluation circuit (30) is taken from said first and second output signals used to detect position and/or

polarity of said exciter magnet.

56. (New) Detector according to Claim 48 wherein said nonvolatile memory unit (36) is a FRAM and/or an EEPROM unit.

57. (New) Detector according to Claim 46 wherein said induction element (SP1) can be supplied with an external current pulse, which serves either to initiate the biasing of the ferromagnetic element (FE) or to continue biasing.

58. (New) Detector for detecting movements, comprising:

a moveable exciter magnet (EM);

only one ferromagnetic element (FE) having Weiss regions and Bloch walls;

an induction element (SP) surrounding said ferromagnetic element (FE);

a sensor element (SE) coordinated to said ferromagnetic element (FE);

said induction element (SP) provides a first output (22) at time (Ts) when said ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM);

said sensor element (SE) provides a second output (24) substantially but not precisely simultaneously with said first output at time Ts when said ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM) without further movement of said exciter magnet (EM); and,

the direction in which said remagnetization of said ferromagnetic element is triggered by said exciter magnet (EM) is established by whether or not said sensor element (SE) has been excited.

59. (New) Detector according to Claim 58 wherein said movable exciter magnet is a rotatable exciter magnet (EM) and said detector is adapted for detecting rotational movements.

60. (New) Detector according to Claim 58 further comprising: an evaluation circuit (30), said evaluation circuit includes a counter (38), a capacitor, and a non volatile memory unit (36); and, said exciter magnet (EM) is rotatable and the detector is adapted for detecting rotational movements.

61. (New) Detector according to Claim 59 wherein said sensor element (SE) is a Hall sensor (HS) and wherein the polarity and direction of movement of said exciter magnet (EM) at time (Ts) is determined from data in said nonvolatile memory (36) and from said first output (22) and said second output (24), said second output generated by said Hall sensor (HS).

62. (New) Detector according to Claim 58 wherein said ferromagnetic element (FE) is a pulse wire.

63. (New) Detector according to claim 58 wherein said induction element (SP) is a coil used to measure said magnetization direction of said ferromagnetic element (FE) in conjunction with said sensor element (SE).

64. (New) Detector according to Claim 58 wherein said sensor element (SE) is a Hall sensor (HS) for measuring the polarity and determining the position of the exciter magnet (EM).

65. (New) Detector according to Claim 58 wherein said exciter magnet moves in two rotational directions, and, said exciter magnet (EM) has an axis which is mounted parallel to said ferromagnetic element (FE).

66. (New) Detector according to Claim 58 wherein said exciter magnet moves in two rotational directions, and, said exciter magnet (EM) has an axis which is mounted perpendicular to said ferromagnetic element (FE).

67. (New) Detector according to Claim 58 wherein at least one ferromagnetic flux

conducting piece (FL1 and/or FL2) for guiding and/or bundling the flux resides proximate to said ferromagnetic element (FE).

68. (New) Detector according to Claim 61 wherein the energy supply for said evaluation circuit (30) is taken from said first and second output signals used to detect position and/or polarity of said exciter magnet.

69. (New) Detector according to Claim 61 wherein said nonvolatile memory unit (36) is a FRAM and/or an EEPROM unit.

70. (New) Detector according to Claim 58 wherein said sensor element (SE) can be supplied with an external current pulse, which serves either to initiate the biasing of the ferromagnetic element (FE) or to continue biasing.